

Wilmington & Western Rail. Road Co.

~~Planters Office~~

Wilmington, Del. December 15 1875

My Dear Dr. Gray

Here are the notes asked for. *Darlingtonia* propagates by seed and also by offshoots (rhizomes) from the main root which in time break off and become independent plants. The latter make annual growth, & send up leaves, & a scape somewhat like *Iris*, &c.

Sadling plants, are several years in coming to maturity and only during the first year, so far as observed, show the *Phoraccia*-like leaves; these are always small ($\frac{1}{2}$ to $1\frac{1}{2}$). On the other plants, the leaves, sometimes, attain a height of 3'. When the leaves, are quite young there is no apparent twist in them, (Mr. A) but when 4'-5' high they twist $\frac{1}{4}$ round; at first the hood, & fish-tail, point inward, but by the half twist these are brought outwards, thus giving them more room and presenting a ~~less~~ more attractive appearance. The ~~leaf~~ ^{leaf} does not begin to form the orifice until the half turn is made.

The secretion of fluid commences before the leaf opens and increases somewhat afterward, but after insects are captured it increases much more rapidly and in proportion to the amount of prey taken. When first forming the taste is bitter and astringent. Good large leaves,

will contain as much as 6' - 7' of fluid + pup; but when they are fed with meat, bread, rice, potato &c, the fluid is very much increased and in some cases almost completely fill, the tubes. Table salt also materially increases the secretion of fluid but in all cases kills the larvae, (and larvae contained therein). In a few days ~~after~~ after thus feeding them crystals of salt are found quite plentifully on wood fishtail &c and in some cases nearly all over the leaves. (file M. a.) The secretion has no intoxicating properties. It is shown to be slightly acid by litmus paper. It kills, insect, in from 3 to 5 minutes.

As soon as warm weather comes on a sweet secretion commences to form in the shape of "Honey dew" on the inside of wood and on the fish tail. By Aug. this is much increased and extends all over the ~~wood~~ ^{fish tail} and on the lower outside as well as inside of the wood. Frequently a drop is seen on the extremity of each lobe of fish tail. It has a strong odor and taste of honey! Insects, flies especially are very fond of it. A line of it extends along the edge of wing to the ground in large leaves, and in all sizes of leaves it is found "like honeydew" along the angles formed by the wing and body ("petiole")

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of the leaf (vide No. a) Many ants can be seen feeding upon it here.

Animals captured consist of "Spiders, wasps, beetles, ants, grasshoppers, katydids, worms, butterflies, moths, flies, ~~spies~~, beetles, gnats, snails" &c. Both ambulatory & flying insects are captured.

In almost all the tubes (and sometimes outside of the leaves near the root) are found ~~many~~ in greater or lesser numbers, a long thin white larvae (of some dipter?) which live upon the decaying mass in the tubes. These do not confine themselves to the fluid but crawl up the tubes as far as the hair, & return.

One or more species of spiders also make their homes in the tubes, spreading their webs & laying their eggs. These also crawl up and down the tubes, without difficulty.

Mr. Austin finds great numbers of an active skipping little insect in the flowers. Also in 35 out of 50 flowers examined at one time spiders and webs. He considers that direct (not cross) fertilization is effected by these.

over

I am about making up a set of some 600
or more of our plants, for an Hungarian botanist.
It is just as easy to lay out two sets as one.
Have you any correspondent you would like
to send such to? If so let me know.

— W. M.